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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,895

Applicant(s)

BRUEKERS ET AL.

Examiner

STEPHEN KOPCHIK

Art Unit

2624

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
- Paper No(s)/Mail Date 7/20/05, 12/04/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1-27 are objected to because of the following informalities: The Examiner requests the Applicant remove reference characters from the claim language as to avoid any potential confusion. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-27 contain the language "at least" and "essentially" and therefore fail to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Appropriate Correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Art Unit: 2624

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows (see also MPEP 2106):

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

3. Claim 19 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 19 as a whole defines a signal and "[a] transitory, propagating signal ... is not a "process, machine, manufacture, or composition of matter." Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable

subject matter." (*In re Nuijten*, 84 USPQ2d 1495 (Fed. Cir. 2007)).

4. Claims 26-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 26 and 27 define a "computer program product" and a "computer program element" respectively embodying functional descriptive material (i.e., a computer program or computer executable code). However, the claim does not define a "computer-readable medium or computer-readable memory" and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" - Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to

"note" below). Merely reciting functional descriptive material as residing on a "tangible" or other medium is not sufficient. If the scope of the claimed medium covers media other than "computer readable" media (e.g., "a tangible media", a "machine-readable media", etc.), the claim remains non-statutory. The full scope of the claimed media (regardless of what words applicant chooses) should not fall outside that of a computer readable medium. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 7-11, 13-21, and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Fridrich et al (Jessica Fridrich, Miroslav Goljan, Rui Du, "Lossless Data Embedding For All Image Formats" Security and Watermarking of Multimedia Contened IV, Processings of SPIE Vol. 4675, January 2002, Pages 572-583, hereafter "Fridrich").

6. Regarding Claim 1, Fridrich discloses a method of providing perceptible additional information (L) in relation to a signal (30; 42) having media content (F1) comprising the steps of:

compressing a first piece of information (P1) in the form of at least a first limited part of the media content essentially without losses, (step 50) (Pages 573-574 and Figure 1; the prior art discloses lossless compression of a subset of X, i.e. a limited part of media content), and

providing the media content (F1) including at least the compressed first piece of information (<P1>) together with perceptible additional information (L), (step 58) such that the original media content and the additional information can be selectively presented to a user essentially without losses (Pages 573-574 and Figure 1; the prior art discloses adding a message, i.e. additional information that can be selectively presented to the user, to the compressed subset of X, the message is able to be decoded by a system thus making it perceptible).

7. Claims 2-3 and 7-11 depends upon Claim 1, therefore the rejection of Claim 1 is incorporated into the rejections of Claim 2-3 and 7-11 and only further limitations will be addressed below.

8. Regarding Claim 2, Fridrich discloses the steps of:

compressing a second piece of information (P2), (step 54), and providing the compressed first and second pieces of information together in the media content, (step 56), such that the media content including the first and second pieces of information can be retrieved essentially without losses (Pages 573-574; the prior art discloses the use of multiple sample sets, particularly the use of $S(x)$ and $S(y)$ as sample sets of a media content X , that are pieced together to form a lossless compression bitstream of X).

9. Claims 3 and 8 depend upon Claim 2, therefore the rejection of Claim 2 is incorporated into the rejections of Claims 3 and 8 and only further limitations will be addressed below.

10. Regarding Claim 3, Fridrich discloses wherein the second piece of information (P2) is in the form of a second limited part of the media content (F1) and the step of providing the first and second information in the media content comprises providing these pieces of information in the original position of the second piece of information within the media content, (step 56) (Pages 573-574).

11. Regarding Claim 7, Fridrich discloses wherein the additional information is of the same type as the media content and is provided in the original position of the first piece of information of the media content, (step 57) (Pages 573-574).

12. Regarding Claim 8, Fridrich discloses wherein the second piece of information is the additional piece of information and the step of providing the first and second pieces of information in the media content comprises providing these pieces of information in the original position of the first piece of information within the media content (Pages 573-574).

13. Regarding Claim 9, Fridrich discloses wherein the media content comprises an image (F1) (Page 573).

14. Regarding Claim 10, Fridrich discloses wherein the media content comprises video (Page 573).

15. Regarding Claim 11, Fridrich discloses wherein the media content comprises audio (Page 573).

16. Regarding Claim 13, Fridrich discloses a method of retrieving compressed information in a signal having media content comprising the steps of:

receiving or retrieving the media content (F1) including a compressed first piece of information in the form of at least a first limited part of the media content together with perceptible additional information (L), (step 59) (Page 574; the prior art discloses the use of multiple sample sets, particularly the use of $S(x)$ and $S(y)$ as sample sets of a media content X , that are pieced together to form a lossless compression bitstream of X which can then be restored to the original non-compressed values).

retrieving the perceptible additional information from the media content, (step 60) (Pages 573-574 and Figure 1; the prior art discloses adding a message, i.e. additional information that can be selectively presented to the user, to the compressed subset of X , the message is able to be extracted and decoded by a system thus making it perceptible), and

presenting at least one of additional information and at least parts of the media content to said user essentially without losses, (step 72) (Pages 582-583).

17. Claim 14 depends upon Claim 13, therefore the rejection of Claim 13 is incorporated into the rejection of Claim 14 and only further limitations will be addressed below.

18. Regarding Claim 14, Fridrich discloses wherein the media content includes a compressed second piece of information which is also retrieved and further including the step of selectively decompressing, (step 64, 68) under the control of a user, at least one of the compressed pieces of information essentially without losses for provision to the user (Pages 574 and 582-583; the prior art discloses the use of multiple sample sets, particularly the use of $S(x)$ and $S(y)$ as sample sets of a media content X , that are pieced together to form a lossless compression bitstream of X which can then be restored to the original non-compressed values. The prior art discloses selective fragile of watermarking that involves dividing image processing into blocks, i.e. sub-pieces of media content).

19. Claims 15 and 16 depend upon Claim 14, therefore the rejection of Claim 14 is incorporated into the rejections of Claims 15 and 16 and only further limitations will be addressed below.

20. Regarding Claim 15, Fridrich discloses wherein the first and second pieces of information are provided in the same location of the media content and further including the step of placing the first piece of decompressed information in the location of the compressed first and second pieces of information within the media content (Pages 573-574).

21. Regarding Claim 16, Fridrich discloses wherein the first and second pieces of information are provided in the same location of the media content and further including the step of placing the second piece of decompressed information in the location of the compressed first and second pieces of information within the media content, step 70) (Pages 573-574).

22. Regarding Claim 17, Claim 17 is an apparatus claim analogous to Claim 1, therefore Claim 17 has been analyzed and rejected with respect to Claim 1 above.

23. Regarding Claim 18, Claim 18 is an apparatus claim analogous to Claim 13, therefore Claim 18 has been analyzed and rejected with respect to Claim 13 above.

24. Regarding Claim 19, Claim 19 is a signal claim analogous to Claim 1, therefore Claim 19 has been analyzed and rejected with respect to Claim 1 above.

25. Regarding Claim 20, Claim 20 is an apparatus claim analogous to Claim 1, therefore Claim 20 has been analyzed and rejected with respect to Claim 1 above.

26. Claims 21 and 23-25 depend upon Claim 20, therefore the rejection of Claim 20 is incorporated into the rejection of Claims 21 and 23-25 and only further limitations will be address below.

27. Regarding Claim 21, Fridrich discloses wherein the control unit is arranged to make the information presentation unit present the additional information over at least a part of the original media content on the information presentation unit (Pages 573-574; the broadest reasonable interpretation of the claim language is the insertion of a watermark into media content which is disclosed by the prior art).

28. Regarding Claim 23, Fridrich discloses wherein the control unit is arranged to provide further additional information over

the original media content (Pages 573-574; the broadest reasonable interpretation of the claim language is the insertion of a watermark into media content which is disclosed by the prior art).

29. Regarding Claim 24, Fridrich discloses wherein the control unit is arranged to allow identification of areas in the original media content, which causes least perceptual distortion if additional information is provided over said area (Page 572-574; the prior art discloses the desirability to insert a watermark so the distortion will be as small as possible).

30. Regarding Claim 25, Fridrich discloses wherein the control unit allows the insertion of new interpolated values between original signal samples (Pages 572-574; the prior art discloses inserting a watermark under extreme zoom conditions which would inherently call for the interpolation of values).

31. Regarding Claim 26, Claim 26 is a "computer program product" claim analogous to Claim 1, therefore Claim 26 has been analyzed and rejected with respect to Claim 1 above.

32. Regarding Claim 27, Claim 27 is a "computer program element" claim analogous to Claim 13, therefore Claim 27 has been analyzed and rejected with respect to Claim 13 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

33. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fridrich as applied to Claim 1 above and in further view of Serret-Avila et al (U.S. Patent No. 6,785,815 B1, hereafter "Serret-Avila").

34. Regarding Claim 4, Fridrich fails to disclose wherein the additional information is provided in another section of the media content than at least the first compressed piece of information.

Serret-Avila discloses wherein the additional information is provided in another section of the media content than at

least the first compressed piece of information (Col.12, Lines 30-67 and Col.13, Lines 1-20; the prior art discloses watermarking a current frame of video based on the previous frame watermarked, i.e. the additional information is in another section of the media content outside the first compressed piece (current frame)).

One of ordinary skill in the art would look to prior art references disclosing different methods of watermarking when designing a system and method of reversible watermarking. Motivation is gleaned from the prior art contemplated. One of ordinary skill in the art at the time of invention would find it obvious to combine the above references, with a reasonable expectation of success, to achieve the claimed invention. Therefore, the combined teachings of Fridrich and Serret-Avila would render Claim 4 unpatentable.

35. Regarding Claim 5, Fridrich fails to disclose wherein the additional information is provided in another signal than the first piece of compressed information.

Serret-Avila discloses wherein the additional information is provided in another section of the media content than at least the first compressed piece of information (Col.12, Lines 30-67 and Col.13, Lines 1-20; the prior art discloses

watermarking a current frame of video based on the previous frame watermarked, i.e. the additional information is in another signal (different frame) of the media content outside the first compressed piece (current frame)).

One of ordinary skill in the art would look to prior art references disclosing different methods of watermarking when designing a system and method of reversible watermarking. Motivation is gleaned from the prior art contemplated. One of ordinary skill in the art at the time of invention would find it obvious to combine the above references, with a reasonable expectation of success, to achieve the claimed invention. Therefore, the combined teachings of Fridrich and Serret-Avila would render Claim 5 unpatentable.

36. Claim 6 depends upon Claim 5 therefore the rejection of Claim 5 is incorporated into the rejection of Claim 6 and only further limitations will be addressed below.

37. Regarding Claim 6, Fridrich fails to disclose wherein the signal comprising the additional piece of information is of another type than the signal including the first piece of information.

Serret-Avila discloses wherein the additional information is provided in another section of the media content than at least the first compressed piece of information (Col.12, Lines 30-67 and Col.13, Lines 1-20; the prior art discloses watermarking a current frame of video based on the previous frame watermarked, i.e. the additional information is in another signal (different frame) of the media content outside the first compressed piece (current frame)).

One of ordinary skill in the art would look to prior art references disclosing different methods of watermarking when designing a system and method of reversible watermarking. Motivation is gleaned from the prior art contemplated. One of ordinary skill in the art at the time of invention would find it obvious to combine the above references, with a reasonable expectation of success, to achieve the claimed invention. Therefore, the combined teachings of Fridrich and Serret-Avila would render Claim 6 unpatentable.

38. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fridrich as applied to Claim 1 above and in further view of Wang et al (U.S. Patent Application Publication No. 2002/0126869 A1, hereafter "Wang").

39. Regarding Claim 12, Fridrich fails to disclose wherein the additional information comprises a hyperlink.

Wang discloses wherein the additional information comprises a hyperlink (Paragraph [0067]).

One of ordinary skill in the art would look to prior art references disclosing different methods of watermarking when designing a system and method of reversible watermarking. Motivation is gleaned from the prior art contemplated. One of ordinary skill in the art at the time of invention would find it obvious to combine the above references, with a reasonable expectation of success, to achieve the claimed invention. Therefore, the combined teachings of Fridrich and Wang would render Claim 12 unpatentable.

40. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fridrich as applied to Claim 20 above and in further view of Wang.

41. Regarding Claim 22, Fridrich fails to disclose wherein the control unit is arranged to read a hyper-link provided in the additional information and connect to a web page associated with the hyper-link.

Wang discloses wherein the control, unit is arranged to read a hyper-link provided in the additional information and connect to a web page associated with the hyper-link (Paragraph [0067]).

One of ordinary skill in the art would look to prior art references disclosing different methods of watermarking when designing a system and method of reversible watermarking. Motivation is gleaned from the prior art contemplated. One of ordinary skill in the art at the time of invention would find it obvious to combine the above references, with a reasonable expectation of success, to achieve the claimed invention. Therefore, the combined teachings of Fridrich and Wang would render Claim 22 unpatentable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN KOPCHIK whose telephone number is (571)270-7117. The examiner can normally be reached on Monday -Thursday 9:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571)272-7415. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN KOPCHIK/
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624